WHAT IS CLAIMED IS:

1. A light wavelength converter including an excitation medium doped with rare earth metals to convert a wavelength of a laser light incident upon the excitation medium, comprising:

a rectangular parallelepiped member comprising a layered member in which the excitation medium is stacked in films on a first optical member having a refractive index lower than that of the excitation medium and having a flat plate shape and in which a second optical member having a refractive index lower than that of the excitation medium is stacked on the stacked surface of the first optical member;

third and fourth optical members which are bonded onto surfaces extending in parallel with a longitudinal direction of the rectangular parallelepiped member and crossing the stacked surface at right angles and which have a refractive index lower than that of the excitation medium; and

first and second reflective members which are formed on the opposite end surfaces of the rectangular parallelepiped member in the longitudinal direction to form a laser resonator structure.

2. The light wavelength converter according to claim 1, wherein the excitation medium comprises a plurality of sub-layers having different refractive indexes with respect to a thickness direction of the

layered member.

3. The light wavelength converter according to claim 2, wherein the plurality of sub-layers include a sub-layer on which the laser light is incident and which has a lowest refractive index, and the other sub-layers have a refractive index successively increasing stepwise from a sub-layer stacked adjacent to the sub-layer upon which the laser light is incident.

4. The light wavelength converter according to claim 1, wherein the third and fourth optical members are fusion-bonded to the rectangular parallelepiped member.

5. The light wavelength converter according to claim 1, wherein the third and fourth optical members are bonded to the rectangular parallelepiped member via an adhesive having a refractive index lower than that of the excitation medium.

6. The light wavelength converter according to claim 1, wherein excitation medium is stacked on the first optical member by a thin-film forming technique.

7. The light wavelength converter according to claim 1, wherein a sectional area of the excitation medium changes with respect to a longitudinal direction of the rectangular parallelepiped member.

8. A light wavelength converter including an excitation medium doped with rare earth metals to convert a wavelength of a laser light incident upon

the excitation medium, comprising:

a first optical member having a refractive index lower than that of the excitation medium and having a flat plate shape;

an optical waveguide formed by the excitation medium patterned in a zigzag shape having a plurality of refractive portions on one plate surface of the first optical member;

a second optical member which is stacked on the optical waveguide via a bonding member having a refractive index lower than that of the excitation medium and which has a refractive index lower than that of the excitation medium; and

a reflective portion forming a laser resonator structure in which the laser light incident upon the excitation medium is reflected in the plurality of refractive portions.

9. A light wavelength converter including an excitation medium doped with rare earth metals to convert a wavelength of a laser light incident upon the excitation medium, comprising:

a first optical member having a refractive index lower than that of the excitation medium and having a flat plate shape;

an optical waveguide formed by the excitation medium patterned in a single stroke on one plate surface of the first optical member;

a second optical member which is stacked on the optical waveguide via a bonding member having a refractive index lower than that of the excitation medium and which has a refractive index lower than that of the excitation medium; and

reflective portions which are formed on opposite ends of the excitation medium to form a laser resonator structure which reflects the laser light incident upon the excitation medium.

10. The light wavelength converter according to claim 9, wherein the excitation medium is formed in a zigzag shape.

11. The light wavelength converter according to claim 9, wherein the excitation medium is formed in a spiral shape.

12. The light wavelength converter according to claim 8 or 9, wherein the excitation medium is stacked on one plate surface of the first optical member by a photoetching process.

13. A method of manufacturing a light wavelength converter including an excitation medium doped with rare earth metals to convert a wavelength of a laser light incident upon the excitation medium, the method comprising:

a first step of stacking the excitation medium in a film on a first optical member having a refractive index lower than that of the excitation medium and

having a flat plate shape;

a second step of stacking a second optical member having a refractive index lower than that of the excitation medium on the stacked surface of the excitation medium to form a layered member;

a third step of cutting the layered member with a predetermined width in a direction crossing a thickness direction of the layered member at right angles to form a rectangular parallelepiped member having a longitudinal direction;

a fourth step of polishing the opposite cut surfaces of the rectangular parallelepiped member in optical surfaces;

a fifth step of bonding third and fourth optical members having a refractive index lower than that of the excitation medium onto the opposite cut surfaces of the polished rectangular parallelepiped member;

a sixth step of polishing the opposite end surfaces of the rectangular parallelepiped member in the optical surfaces; and

a seventh step of bonding first and second reflective members forming a laser resonator structure onto the opposite end surfaces of the polished rectangular parallelepiped member in the longitudinal direction.

14. The method of manufacturing the light wavelength converter according to claim 13, wherein the

first step comprises: a step of stacking a plurality of excitation mediums having different refractive indexes with respect to the thickness direction of the layered member.

15. The method of manufacturing the light wavelength converter according to claim 14, wherein the first step comprises: successively changing the refractive indexes of the plurality of excitation mediums stepwise for each adjacent excitation medium to stack the plurality of excitation mediums.

16. The method of manufacturing the light wavelength converter according to claim 13, wherein the fifth step comprises: fusion-bonding the third and fourth optical members onto the rectangular parallelepiped member.

17. The method of manufacturing the light wavelength converter according to claim 13, wherein the fifth step comprises: bonding the third and fourth optical members onto the rectangular parallelepiped member via an adhesive having a refractive index lower than that of the excitation medium.

18. The method of manufacturing the light wavelength converter according to claim 13, wherein the first step comprises: stacking the excitation medium on the first optical member by a thin-film forming technique.

19. The method of manufacturing the light

wavelength converter according to claim 13, wherein the first step comprises: an eighth step of forming the excitation medium in such a manner that a sectional area of the excitation medium in a middle part of the rectangular parallelepiped member in the longitudinal direction is broader than that of the excitation medium in an end of the rectangular parallelepiped member in the longitudinal direction.

20. A method of manufacturing a light wavelength converter including an excitation medium doped with rare earth metals to convert a wavelength of a laser light incident upon the excitation medium, the method comprising:

a first step of patterning the excitation medium in a zigzag shape having a plurality of refractive portions to form an optical waveguide on one plate surface of a first optical member having a refractive index lower than that of the excitation medium;

a second step of stacking a second optical member having a refractive index lower than that of the excitation medium on the optical waveguide via a bonding member having a refractive index lower than that of the excitation medium; and

a third step of forming a reflective portion forming a laser resonator structure which reflects the laser light incident upon the excitation medium in the plurality of refractive portions.

21. A method of manufacturing a light wavelength converter including an excitation medium doped with rare earth metals to convert a wavelength of a laser light incident upon the excitation medium, the method comprising:

a first step of patterning the excitation medium in a single stroke to form an optical waveguide on one plate surface of a first optical member having a refractive index lower than that of the excitation medium;

a second step of stacking a second optical member having a refractive index lower than that of the excitation medium on the optical waveguide via a bonding member having a refractive index lower than that of the excitation medium; and

a third step of forming reflective portions forming a laser resonator structure which reflects the laser light incident upon the excitation medium on opposite ends of the excitation medium.

22. The method of manufacturing the light wavelength converter according to claim 20 or 21, wherein the first step comprises: stacking the excitation medium on one plate surface of the first optical member by a photoetching process.